

SECTION 12 48 16

ENTRANCE FLOOR GRILLES STAINLESS STEEL GRATING

Part 1. GENERAL

1.01 SUMMARY: This section includes Entrance Floor Grilles (*Stainless Steel Grating*) with aluminum or stainless steel frames. The Stainless Steel Grating is 1-1/8" thick and is designed to span up to 3'0". The product is recommended for drainage pit and trench grating applications, and may be used in level bed recessed applications for new construction or major renovation.

1.02 REFERENCES

- A. American Society for Testing and Materials (ASTM)
 - 1. ASTM A276 Standard Specification for Stainless Steel Bars and Shapes
 - 2. ASTM A240 / A240M Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications
 - 3. ASTM B221 – Standard Specification for Aluminum and Aluminum Alloy Extruded Bars, Rods, Wire, Shapes and Tubes.
 - 4. ASTM A193 Standard Specification for Alloy-Steel and Stainless Steel Bolting for High Temperature or High Pressure Service and Other Special Purpose Applications
 - 5. ASTM D2047 Standard Test Method for Static Coefficient of Friction of Polish-Coated Flooring Surfaces as Measured by the James Machine
- B. National Association of Architectural Metals Manufacturers (NAAMM)
 - 1. NAAMM AMP-500 Metals Finishes Manual for Architectural and Metal Products
 - 2. ANSI/NAAMM A202.1 (MBG-531) Metal Bar Grating Manual
- C. U.S. Architectural & Transportation Barriers Compliance Board's Americans with Disabilities Act (ADA), Accessibility Guidelines for Buildings and Facilities (ADAAG)
- D. American Concrete Institute (ACI) ACI 302 Guide for Concrete Floor and Slab Construction
- E. U.S. Green Building Council (USGBC), LEED 2009 for New Construction and Major Renovations
- F. California Department of Health Services, California Specification 01350
- G. Ceilings and Interior Systems Construction Association (CISCA) Recommended Test Procedures for Access Flooring

1.03 ADMINISTRATIVE REQUIREMENTS

- A. Coordination: Coordinate size and location of recess in concrete as required to receive floor Entrance Floor Grilles and frames.
- B. Defer frame installation until building enclosure is complete and related interior work is in progress.

1.04 SUBMITTALS

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- A.** Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for Entrance Floor Grilles and frames.
- B.** Shop Drawings: Show the following:
 - 1. Items penetrating Entrance Floor Grilles and frames.
 - 2. Divisions between Entrance Floor Grille sections.
 - 3. Perimeter frames
 - 4. Show layout and types of Entrance Floor Grilles and frames, details of patterns, anchors and accessories, and field measurements of slab recess to receive Entrance Floor Grilles and frames (if applicable)
- C.** Samples: For each type of product indicated, not less than 6 inch square sections of Entrance Floor Grille and 6 inch length of frame material
- D.** Sustainable Design Submittals:
 - 1. Provide product documentation certifying the percentage by weight of pre-consumer and postconsumer recycled content of materials based on the cost of the total materials value. (LEED MR Credit 4)
 - 2. All flooring elements installed in the building interior must meet the testing and product requirements of the California Department of Health and Services, California Specification 01350, "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers". (LEED IEQ Credit 4.3)
 - 3. Provide Entrance Floor Grilles at least 10 feet long in the primary direction of travel. Provide documentation certifying that the Entrance Floor Grilles and frames provide a permanent entryway system that allows cleaning underneath. (LEED IEQ Credit 5)

1.05 CLOSEOUT SUBMITTALS

- A.** Maintenance Data: Submit Manufacturers maintenance instructions for Entrance Floor Grilles and frames, to be included in maintenance manuals.
- B.** Warranty Documentation: Submit Manufacturer's limited warranty that products are free from defects in material and workmanship and shall perform as specified for a period of not less than 5 years when installed and maintained in accordance with the manufacturer's instructions.

1.06 QUALITY ASSURANCE: Obtain Entrance Floor Grilles and frames from a single manufacture

1.07 DELIVERY, STORAGE AND HANDLING

- A.** Deliver Materials to the project site ready for use and fabricated in as large of sections and assemblies as practical, in unopened original factory packaging clearly labeled to identify the Manufacturer.
- B.** Store Materials in original factory packaging, under cover in dry, well-ventilated spaces.

1.08 SITE CONDITIONS

- A.** Field Measurements *[as required]*: Installer shall check actual openings for Entrance Floor Grilles and frames by accurate field measurements prior to fabrication. Record field measurements on final shop drawings.
- B.** Coordinate frame installation with concrete construction to ensure recess and frame anchorage are accurate and that the base is level and flat.

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C. Defer installation of Entrance Floor Grilles until the time of substantial completion of the project.

1.09 **WARRANTY:** Entrance Floor Grilles and frames shall be fabricated free of defects in materials and workmanship, and the manufacturer shall offer a 5 year warranty against defects in material and workmanship.

Part 2. PRODUCTS

2.01 MANUFACTURED UNITS

- A. Manufacturer: Provide products by Kadee Industries, Inc., Walton Hills, OH 44146 Phone: 800-321-3827 Fax: 440-439-6889; email: floormats@kadeeindustries.com
- B. Basis of Design: Kadee Industries SSS Clean Tread™ Model KD98

2.02 DESCRIPTION

- A. Accessibility requirements: Provide and install Entrance Floor Grilles and frames compliant with Section 4.5 in the U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA), Accessibility Guidelines for Buildings and Facilities (ADAAG)
- B. Sustainability Characteristics: Provide Entrance Floor Grilles manufactured from stainless steel comprised of no less than 80% post consumer recycled content and 15% pre-consumer recycled content.

2.03 PERFORMANCE REQUIREMENTS:

- A. Provide Entrance Floor Grilles capable of withstanding a uniform floor load of 1,500 lbf/sq. ft.
- B. Provide Entrance Floor Grilles with a minimum Coefficient of Friction of 0.6 as measured by the James Machine defined in ASTM D2047 using Standard Neolite in dry and wet testing.
- C. Provide Entrance Floor Grilles capable of withstanding a rolling load of 1,000 lbs. per wheel for 1,000 passes with no visible damage or permanent deflection.

2.04 MATERIALS

- A. Provide colors, patterns and profiles of materials, including metals and metal finishes indicated or specified.
- B. Furnish and install SSS Clean Tread™ Model KD98 Entrance Floor Grilles and Frames as manufactured by Kadee Industries, Walton Hills, OH. Grille thickness shall be 1-1/8"
 - 1. Tread Material shall be manufactured from Type 304 stainless steel .071" x .177" surface wires spaced with a .125" slot opening and resistance welded to .070 x 1.0" Type 304 stainless steel support rods spaced 1" on center.
 - 2. Hidden Lockdowns [*standard construction*]: Entrance Floor Grilles shall include hidden locking devices manufactured from formed Type 304 stainless steel saddle clip slotted to receive a spring clip and an ASTM A193 Grade B8 18-8 stainless steel machine screw. Hidden Lockdowns shall be spaced no greater than 2'0" on center.
 - 3. Visual Lockdowns [*as an optional add alternate*]: Entrance Floor Grilles shall include visual locking devices manufactured from sintered stainless steel blocks machined to receive an ASTM A193 Grade B8 18-8 stainless steel machine screw. Visual Lockdowns shall be spaced no greater than 2'6" on center.
 - 4. Level Bed Frames: Support rods must rest directly on the recessed floor. [*select from options as listed*]

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- a. Provide 1-5/8" deep embedded frames for permanent recessed installation manufactured from extruded aluminum alloy 6063-T6, complete with corner connectors, splice plates and anchorage devices.
 - b. Provide welded frames fabricated from 1-1/4" x 1-1/4" x 1/8" thick Type 304 stainless steel angle with 1" x 1/8" intermediate members and splice plates as required, complete with grouting strap anchors for a permanent recessed application.
 - c. Provide knock down perimeter frames fabricated from 1-1/4" x 1-1/4" x 1/8" thick Type 304 stainless steel with corner joints coped and fitted. Anchors provided by the installer.
5. Drainage Pit Frames: *[select from options as listed]*
- a. Provide 1-5/8" deep embedded frames for permanent recessed installation manufactured from extruded aluminum alloy 6063-T6, complete with corner connectors, splice plates and anchorage devices. Provide welded intermediate framing supports manufactured from 1-1/2" x 1-1/2" x 3/16" aluminum spaced no greater than 3'0" on center.
 - b. Provide welded frames fabricated from 1-1/4" x 1-1/4" x 1/8" thick Type 304 stainless steel angle with splice plates as required, complete with grouting strap anchors for a permanent recessed application. Provide welded intermediate framing supports manufactured from 1-1/2" x 1-1/2" x 3/16" Type 304 stainless steel angle spaced no greater than 3'0" on center for a uniform floor load of 300 lbf/sq. ft. and no greater than 2'0" on center a uniform floor load of 500 lbf/sq. ft.
6. Drain Pans *[optional, select from options as listed]:*
- a. Provide .050" thick [16 gage] aluminum sheet pit liners as shown on the approved shop drawings. *[2" drain, pipe, stainless steel strainer, and drain trap shall be furnished under the plumbing contract.]*
 - b. Provide .053" thick [16 gage] Type 304 stainless steel pit liners as shown on the approved shop drawings. *[2" drain, pipe, stainless steel strainer, and drain trap shall be furnished under the plumbing contract.]*

2.05 ASSEMBLY

- A. Shop Fabrication:
 1. Shop Fabricate Entrance Floor Grilles and frames to the greatest extent possible in the sizes as indicated. Unless otherwise indicated, provide each grille as a single unit. Do not exceed the manufacturer's recommended size and layout for units that are removed for maintenance and cleaning.
 2. Fabricate frame members in single lengths or, where frame dimensions exceed maximum available lengths, provide pieces with hairline joints spliced together.
- B. Fabricate Entrance Floor Grilles and frames in accordance with the final shop drawings. Manufacturing tolerances shall be in accordance with ANSI/NAAMM A202.1 (MBG-531) Metal Bar Grating Manual.

2.06 FINISHES

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- A. Comply with NAAMM'S "Metals Finishes Manual for Architectural and Metal Products".
- B. Tread Material: Stainless Steel: Polished Finish No 4
- C. Aluminum Frames [*select from options as listed*]
 - 1. Mill Finish
 - 2. Anodized Finish
 - a. Class 1 Anodized AA-M12C22A41. Color Clear
 - b. Class 1 Anodized AA-M12C22A42. Color Bronze
- D. Stainless Steel Frames: Stainless Steel Mill Finish No. 2
- E. Drain pans and Pit Liners:
 - 1. Aluminum Mill Finish M10
 - 2. Stainless Steel Mill Finish No. 2

Part 3. EXECUTION

3.01 EXAMINATION

- A. Products must be installed on a flat and level substrate, not more than 1/8 inch in 10 feet out of plumb per ACI 302.
- B. Examine substrates and floor conditions for compliance with requirements for location, size, recess depth and other conditions affecting installation of the Entrance Floor Grilles and frames.
- C. Proceed with installation only after all unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Install frames to comply with the Manufacturer's written instructions. Install frames level and tightly fitted together to prevent units from bowing, warping, moving or slipping.
- B. Install Entrance Floor Grilles to comply with the Manufacturer's written instructions. Coordinate top of entrance mat surface with doors that swing across the Entrance Floor Grilles to provide clearances under the door.
- C. Use all of the lockdowns as provided by the Manufacturer. Ensure that all of the lockdown machine screws are tight, and the Entrance Floor Grilles are level, coplanar with the adjacent floor and obstruction free.

3.03 PROTECTION

- A. After completing frame installations, provide temporary filler of plywood or fiberboard in Entrance Floor Grille recesses and cover frames with protective flooring. Maintain protection until construction traffic has ended and project is near substantial completion.
- B. Install Entrance Floor Grilles when no further wheeled construction traffic will occur and all wet type operations, including painting are complete.

3.04 MAINTENANCE

- A. After installation, inspect the Entrances Floor Grilles regularly to ensure that all of the lockdown machine screws are tight, and the Entrance Floor Grilles are level, coplanar with the adjacent floor and obstruction free.
- B. Maintain Entrance Floor Grilles and frames to comply with the Manufacturer's written instructions.